UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EXTENSION OF ELASTIC LIQUIDS: POLYISOBUTYLENE -U-

AUTHOR-(03)-VINOGRADOV, G.V., RADUSHKEVICH, B.V., FIKHMAN, V.D.

R

COUNTRY OF INFO--USSR

SOURCE--J. POLYMER SCI. PT.A-2 POLYMER PHYS. (USA), VOL. 8, NO. 1, P. 1-17 (JAN. 1970)

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYISOBUTYLENE, MOLECULAR WEIGHT, DEFORMATION RATE, MATERIAL TESTING EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1096 STEP NO--US/0000/70/003/001/0001/0017

CIRC ACCESSION NO--AP0136516

UNCLASSIFIED

2/2 026

UNCLASSIFIED

CIRC ACCESSION NO--AP0136516

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APPARATUS IS DESCRIBED AND A METHOD DISCUSSED FOR DETERMINING THE RHEOLOGICAL CHARACTERISTICS OF ELASTIC LIQUIDS DURING EXTENSION AT CONSTANT RATES OF DEFORMATION AND EXTENSION. THE MATERIAL STUDIED WAS POLYISOBUTYLENE OF MOLECULAR WEIGHT 7 TIMES 10 PRIME4. AT LOW CONSTANT DEFORMATION RATES STEADY FLOW REGIMES WERE ACHIEVED. WITH CORRESPONDING EQUILIBRIUM HIGH ELASTIC STRAINS. A DETAILED STUDY HAS BEEN MADE OF THE PROCESS OF ATTAINMENT OF STEADY FLOW REGIMES AND IT IS SHOWN THAT BEFORE STEADY FLOW IS REACHED THE CURVE OF LONGITUDINAL VISCOSITY VERSUS STRAIN PASSES THROUGH A MAXIMUM. AS THE RATE OF DEFORMATION RISES, THE STRAINS AT WHICH STEADY STATE FLOW REGIMES ARE ACHIEVED INCREASE, AND THE TIME REQUIRED TO REACH THESE REGIMES DECREASES. QUALITATIVELY THIS OCCURS IN THE SAME WAY AS UPON SHEAR. THE DEPENDENCE OF EQUILIBRIUM HIGH ELASTIC STRAINS (UNDER STEADY FLOW REGIMES) ON THE RATE OF DEFORMATION HAS BEEN DETERMINED. AT STEADY FLOW REGIMES THE STRESS DEPENDS LINEARLY ON THE RATE OF DEFORMATION AT LOW VALUES OF THE STRESS. UNDER SUCH CONDITIONS TROUTON'S FORMULA IS VALID. AT CONSTANT RATES OF EXTENSION THE STRESS VERSUS TIME CURVE PASSES THROUGH A MAXIMUM WHICH BECOMES HIGHER WITH INCREASING EXTENSION RATES. FACILITY: ACAD. SCI., MOSCOW, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EXTENSION OF ELASTIC LIQUIDS: POLYISOBUTYLENE -U-

AUTHOR-(03)-VINOGRADOV, G.V., RADUSHKEVICH, B.V., FIKHMAN, V.D.

R

COUNTRY OF INFO--USSR

SOURCE--J. POLYMER SCI. PT.A-2 POLYMER PHYS. (USA), VOL. 8, NO. 1, P. 1-17 (JAN. 1970)

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYISOBUTYLENE, MOLECULAR WEIGHT, DEFORMATION RATE, MATERIAL TESTING EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1096 STEP NO--US/0000/70/008/001/0001/0017

CIRC ACCESSION NO--AP0136516

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0136516

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APPARATUS IS DESCRIBED AND A METHOD DISCUSSED FOR DETERMINING THE RHEOLOGICAL CHARACTERISTICS OF ELASTIC LIQUIDS DURING EXTENSION AT CONSTANT RATES OF DEFORMATION AND EXTENSION. THE MATERIAL STUDIED WAS POLYISOBUTYLENE OF MOLECULAR WEIGHT 7 TIMES 10 PRIME4. AT LOW CONSTANT DEFORMATION RATES STEADY FLOW REGIMES WERE ACHIEVED. WITH CORRESPONDING EQUILIBRIUM HIGH ELASTIC STRAINS. A DETAILED STUDY HAS BEEN MADE OF THE PROCESS OF ATTAINMENT OF STEADY FLOW REGIMES AND IT IS SHOWN THAT BEFORE STEADY FLOW IS REACHED THE CURVE OF LONGITUDINAL VISCOSITY VERSUS STRAIN PASSES THROUGH A MAXIMUM. AS THE RATE OF DEFORMATION RISES, THE STRAINS AT WHICH STEADY STATE FLOW REGIMES ARE ACHIEVED INCREASE, AND THE TIME REQUIRED TO REACH THESE REGIMES DECREASES. QUALITATIVELY THIS OCCURS IN THE SAME WAY AS UPON SHEAR. THE DEPENDENCE OF EQUILIBRIUM HIGH ELASTIC STRAINS (UNDER STEADY FLOW REGIMES) ON THE RATE OF DEFORMATION HAS BEEN DETERMINED. AT STEADY FLOW REGIMES THE STRESS DEPENDS LINEARLY ON THE RATE OF DEFORMATION AT LOW VALUES OF THE STRESS. UNDER SUCH CONDITIONS TROUTON'S FORMULA IS VALID. AT CONSTANT RATES OF EXTENSION THE STRESS VERSUS TIME CURVE PASSES THROUGH A MAXIMUM WHICH BECOMES HIGHER WITH INCREASING EXTENSION RATES. FACILITY: ACAD. SCI., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.
AP0045784 Abstracting Service:
CHEMICAL ABS R 4/-70

Ref. Code
US0000

67415u **Extension of elastic liquids: polyisobutylene.** Vinogradov, G. V.; Radushkevich, B. V.; Fikhman, V. D. (Inst. Petrochem. Syn., Moscow, USSR). *J. Polym. Sci., Part A-2* 1970, 8, 1-17 (Eng). An app. is described and a method discussed for detg. the rheol. characteristics of elastic liqs. during extension at const. rates of deformation and extension. The material studied was polyisobutylene of mol. wt. $7 \times 10^4$. At low const. deformation rates steady-flow regimes were achieved, with corresponding equil. high elastic strains. A detailed study was made of the process of attainment of steady-flow regimes and it is shown that before steady flow is reached the curve of longitudinal viscosity vs. strain passes through a max. As the rate of deformation rises, the strains at which steady-state flow regimes are achieved increase, and the time required to reach these regimes decreases. Qual. this occurs in the same way as upon shear. The dependence of equil. high-elastic strains (under steady-flow regimes) on the rate of deformation was detd. At steady-flow regimes the stress depends linearly on the rate of deformation at low values of the stress. Under such conditions Trouton's formula is valid. At const. rates of extension the stress versus time curve passes through a max. which becomes higher with increasing extension rates.

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Adsorption

USSR

UDC 541.183

ZOLOTAREV, P. P., and RADUSHKEVICH, L. V., Institute of Physical Chemistry of the Academy of Sciences USSR, Moscow

"Temperature Variation in Adsorbent Grain During Adsorption"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLIV, No 12, Dec 70, pp 3096-3098

Abstract: Temperature within adsorption grains is known from experiments to vary in a degree proportional to the rate at which the grain adsorbs material, and to vary inversely with the facility of heat transfer between the grain and the surrounding medium, reaching a maximum within a period of time shorter by a factor of several powers of 10 than that required to establish adsorption equilibrium.

Assuming that the grains are spherical, and limiting themselves to linear and rectangular isotherms, the authors derive several formulas which reflect approximately the course of temperature change during adsorption (rectangular isotherms, in particular, are characteristic of adsorption on synthetic zeolites and activated carbon). Several different factors must be determined experimentally to use these formulas.

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Adsorption

USSR

UDC 542.65 + 541.183

ZOLOTAREV, P. P., and RADUSHKEVICH, L. V., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Kinetics of Nonisometric Adsorption"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 6, Dec 70, pp 1361-1364

Abstract: A theoretical analysis is presented on the adsorption kinetics on individual adsorbent grains with consideration of heat evolution. Two types of models are analyzed: a spherical one and a cylindrical model. It has been shown that the initial stage of adsorption kinetics in the cylindircal grain postulated may be described by a simple differential equation whose solution is much easier than that of the starting system. Formulas have been developed for the distribution of temperature in the grains at the time when relative temperature variations in the adsorption process are still small.

1/2 014

UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--DERIVATION OF GENERAL EQUATIONS OF ADSORPTION DYNAMICS FOR A FIXED
GRANULAR POROUS MEDIUM -U-

AUTHOR-(02)-ZOLOTAREV, P.P., RADUSHKEVICH, L.V.

COUNTRY OF INFO--USSR

R

SOURCE--ZH. FIZ., KHIM. 1970, 44(4), 1071-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCULATION, ADSORPTION, ISOTHERM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0759 STEP NO--UR/0076/70/044/004/1071/1076

CIRC ACCESSION NO--AP0136196

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136196
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MATH. CALCNS. WERE MADE FOR
ISOTHERMAL AND NONISOTHERMAL SORPTION. FACILITY: INST. FIZ.
KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
ITLE--INTERNAL DIFFUSION IN A GRAIN OF ADSORBENT WITH A VARIABLE
COEFFICIENT OF DIFFUSION AND A NONLINEAR ISOTHERM -U-
UTHOR-(02)-ZOLOTAREV, P.P., RADUSHKEVICH, L.V.

R

OUNTRY OF INFO--USSR

OURCE--ZH. FIZ. KHIM. 1970, 44(1), 244-6

ATE PUBLISHED--------70

UBJECT AREAS--CHEMISTRY

OPIC TAGS--ADSORPTION, ISOTHERM, DIFFUSION COEFFICIENT

ONTROL MARKING--NO RESTRICTIONS

OCUMENT CLASS--UNCLASSIFIED
ROXY REEL/FRAME--2000/2072 STEP NO--UR/0076/70/044/001/0244/0246

IRC ACCESSION NO--AP0125659
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

IRC ACCESSION NO--AP0125659

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE APPROX. SOLN. OF THE PROBLEM OF INTERNAL DIFFUSION IN AN ADSORBENT GRAIN IS PRESENTED FOR DIFFERENT NONLINEAR ISOTHERMS AND CONCN. DEPENDENT DIFFUSION COEFFS. RELATIVELY SIMPLE FORMULAS FOR THE CONCN. OF ADSORBATE IN THE MOVING AND STABLE PHASES ARE DERIVED FOR A PRISMATICALLY OR CINDRICALLY SHAPED GRAIN.

FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC: 541.183

ZOLOTAREV, P. P., and RADUSHKEVICH, L. V., Institute of Physical Chemistry, Moscow, Academy of Sciences USSR

"Derivation of General Adsorption Dynamics Equations for a Stationary Granular Porous Medium"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 4, Apr 1970, pp 1071-1076

Abstract: This paper concerns the derivation of adsorption dynamics equations for a stationary granular porous medium for both isothermic and non-isothermic cases. In order to derive the differential equations of adsorption dynamics, use is made of the concept of a compact medium which, on the one hand, must absorb the admixture and, on the other, must be permeable for the gas or liquid-carrier. A real sorption medium always comprises sorbent grains with gaps forming a chaotic system of passes -- cavities termed as pores. It is assumed that this porous space is statically uniform and isotropic. A real sorbent layer may be regarded as a compact medium under the assumption that the elementary macrovolume for such a medium is volume $\Delta\Omega$ which comprises an adequate number of grains and pores, yet is small when compared to the scale of transfer processes. It follows

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USSR

ZOLOTAREV, P. P., et al, Zhurnal Fizicheskoy Khimii, Vol 44, No 4, Apr 1970, pp 1071-1076

that all values which enter the adsorption dynamics equations actually are corresponding mean values with respect to $\Delta\Omega$ . Strictly speaking, these equations must be derived by averaging, with respect to $\Delta\Omega$ , the appropriate mass- and heat-transfer equations which are valid for individual pores and grains. An attempt to derive such equations is described in this study.

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USSR UDC 541.183

ZOLOTAREV, P. P., DUBININ, M. M., NIKOLAYEV, K. M., POLYAKOV, N. S., and RADUSHKEVICH, L. V., Institute of Physical Chemistry, Acad. Sc. USSR

"Study of the Adsorption Dynamics in a Wide Range of Concentrations. 3 Communication. Fundamentals of the Theory of the Process"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1484-1489

Abstract: In previous papers the general picture of the adsorption dynamics of a series of compounds on active carbon was analyzed. This study is devoted to theoretical considerations. To make the analysis possible, the process has been broken down into three stages: the first stage with instantaneous distribution of the concentrations along the layer; the second -- with various concentrations being shifted at different rates, changing during the process; and the third in which the entire adsorption wave is shifted at a practically constant rate. Mathematical expressions have been derived for the distribution of concentrations along the layer of adsorbent grains for short times with consideration of the effect of longitudinal diffusion. A method has been proposed for the determination of the coefficient of internal mass exchange from the known coefficient of longitudinal diffusion and distribution

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USSR

ZOLOTAREV, P. P., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1484-1489

of passage concentrations along the layer. A formula was derived describing the initial portion (area of low concentrations) of the output curves under conditions of stationary front. This curve appears to be a straight line in coordinates: logarithm of relative concentration -- time.

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1/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--RADIOISOTOPE SCANNING OF THE LIVER IN THE RESTORATIVE PERIOD AFTER RESUSCITATION OF THE ORGANISM -U-

AUTHOR-(04)-RADUSHKEVICH, V.P., MIKHAYLOV, M.M., KOSONOGOV, L.F., TELNOV, YU.A.

COUNTRY OF INFO--USSR

R

SOURCE--KHIRURGIYA, 1970, NR 4, PP 105-108

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOISOTOPE, MEDICAL NUCLEAR APPLICATION, LIVER, RESUSCITATION, CLINICAL DEATH, IODINE ISOTOPE, TAGGED ATOM, ROSE BENGAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1217 STEP NO--UR/0531/70/000/004/0105/0109

CIRC ACCESSION NO--AP0054112

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054112

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEPICTS THE EXPERIENCE IN RADIOISOTOPE SCANNING OF THE LIVER OF THE RESUSCITATED ORGANISM WITH A DIFFERENT DURATION OF CLINICAL DEATH. A RADIOIODINE LABELLED SOLUTION OF BENGAL ROSE WAS INTRODUCED INTRAVENOUSLY IN A DOSE OF 2 MUG-KG OF BODY WEIGHT. EXPERIMENTAL AND CLINICAL INVESTIGATIONS TESTIFY TO THE GREAT VALUE OF RADIOACTIVE SCANNING OF THE LIVER IN THE RESUSCITATED ORGANISM. SCANNING YIELDS ADDITIONAL INFEORMATION ON THE CLINICO BIOCHEMICAL DATA FOR THE EVALUATION OF THE FUNCTIONAL CAPACITY OF THE LIVER.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CURRENT ALGEBRA, POLE DOMINANCE AND MESON BARYON INTERACTIONS -U-

AUTHOR-(02)-RADUTSKIY, G.M., TABACHENKO, A.N.

R

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 3, PP 353-363

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MESON INTERACTION, BARYON, LAGRANGE EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1245 STEP NO--UR/0646/70/003/003/0353/0363

CIRC ACCESSION NO--AP0124897

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124897

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMULATION OF THE HARD PION METHOD PROPOSED BY R. ARNOWITT ET AL. IS GENERALIZED TO SYSTEMS INCLUDING NUCLEONS AND THE ANGLE (1236) RESONANCE. THE EFFECTIVE INTERACTION LAGRANGIANS ARE CONSTRUCTED WHICH ALLOW ONE TO CALCULATE THE AMPLITUDES OF DIFFERENT MESON BARYON REACTIONS. FACILITY: TOMSKIY POLITEKHNICHESKIY INSTITUT. FACILITY: NII YADERNOY FIZIKI, ELEKTRONIKI I AVTOMATIKI.

UNCLASSIFIED

USSR

UDC 620.192.4

KOLTUNOVA, L. N., PETRUSHIN, A. P., RADUTSKIY, M. A., ROYKH, I. L., Odessa Technological Institute imeni M. V. Lomonosov

"Comparative Study of the Physicomechanical Properties of Galvanic and Vacuum Chrome Coatings on AL2 Aluminum Alloy"

Moscow, Avtomobil'naya promyshlennost', No. 9, Sep 71, pp 33-34

Abstract: The structure and properties of galvanic and vacuum chrome coatings on AL2 Silumin are compared. Optimal chrome-plating regimes were selected. The galvanic chrome coating was applied from a standard electrolyte (150 g/l $CrO_3$, 3 g/l $H_2SO_4$) at 48-52°C and a current density of 36-46 amp/$in^2$. The rate of application of the chrome coating under this regime was 0.3-0.4 μ/min. The vacuum chrome coating was produced with an electron-beam evaporator with a power of 7-8 kw which formed a band electron beam; this beam was directed with the aid of an appropriate deflecting electromagnetic system onto a crucible with evaporated chrome. The optimal regime for vacuum chrome-plating of AL2 Silumin was: surface temperature of Silumin before initial condensation of chrome vapors 325-350°C, vacuum ahead of initial evaporation of at least $1 \cdot 10^{-4}$ mm Hg, chrome-plated Silumin temperature of 50-70°C when the air enters the vacuum

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USSR

KOLTUNOVA, L. N., et al, Avtomobil'naya promyshlennost', No. 9, Sep 71, pp 33-34

chamber. The structures of the vacuum and galvanic chrome coatings were investigated by x-ray and metallographic methods and it was found that the average grain size of galvanic chrome was 0.1-0.2 μ and of vacuum chrome was 0.02 μ, indicating the vacuum coating was more finely dispersed than the galvanic. The vacuum coating had excellent adhesion to the base, was plastic and did not crack even under transverse polishing. The galvanic coating was brittle and the adhesion was poor at some places. The microhardness of the galvanic chrome on Silumin at a load of 20 g was 450-500 kg/mm$^2$ and that of the vacuum chrome was 500-530 kg/mm$^2$. Wear tests showed that for a thickness of less than 10 μ the vacuum chrome coatings have higher protective properties as compared with galvanic coatings both under humid atmospheric conditions and under complete immersion in a 3% solution of NaCl. This difference decreases for thicker coatings and for a thickness of more than 20 μ the protective properties of vacuum and galvanic chrome coatings on AL2 Silumin are the same.

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Acc. Nr: AP0036534 Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,
pp 87-90

# STUDY OF THE VARIATION WITH TIME OF THE VIBROVISCOSITY OF STIFF CONCRETE MIXES

Radvinskiy, B. M.; Mikhaylov, N. V.; Vorob'yev, Yu. L.

## Summary

The variation with time of stiff concrete mixes has been studied. The curves obtained show a maximum coinciding with the end of the period of the development in the mix of the coagulation structure of cement paste.

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REEL/FRAME
19721382

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USSR

UDC: 8.74

VASIL'YEV, A. V., PYATETSKIY-SHAPIRO, I. I., RADVOGIN, Yu. B., Institute of Applied Mathematics, Academy of Sciences of the USSR

"Modeling Processes of Sorting, Invasion and Aggregation of Cells"

Moscow, Modelirovaniye protsessov sortirovki, invazii i aggregatsii kletok (cf. English above), 1972, 49 pp, ill. bibl. 11 titles (manuscript deposited in VINITI 16 Nov 72, No 5087-72 Dep.) (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V673 Dep. by the authors)

Translation: An investigation is made into the local mechanisms responsible for sorting, invasion and aggregation of cells. It was found that 10-24 bonds per cell is sufficient for sorting of aggregates whose dimensions are comparable with actual sizes. It is shown that each cell is displaced by 3-5 cellular diameters on the average in the sorting process. For modeling of invasion it is shown that each cell must be bound to 2-3 layers of neighboring cells.

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Rem / / R 760 / 5-MAR 73

Jun '72

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$\mu \sim T^{\omega}$. A brief analysis is given of the calculation results (presented in 10 figures), as well as a comparison with experimental and other theoretical data.

Kukarkina, M. A., and Yu. B. Radvogin.
Application of a divergent scheme for solution of flow problems. Trudy II Respublikanskoy konferentsii po aerogidromekhanike, teploobmenu i massoobmenu. Sektsiya "Aerodinamika bol'shikh skorostey". Kiyev. Kiyevskiy universitet, 1971, 66-72. (RZhMekh, 5/72, no. 5B334)

A modification is proposed of a known method of calculating supersonic gas flow (Babenko, Voskresenskiy, Lyubimov, and Rusanov. Prostranstvennoye obtekaniye gladkikh tel ideal'nym gazom. Three-dimensional flow around smooth bodies by an ideal gas. Moskva, Nauka, 1964. RZhMekh, 1965, 4B207K). The modified equations of gas dynamics are written in divergent form and in a conversion to new independent variables which permit the interval length of the difference grid, in terms of physical units, to be decreased without difficulty in regions of acute change of the parameters. Examples of flow around two complex bodies at M = 10 show that the method may be used for the calculation of flow with large gradients of gas-dynamic values.

RADVOGIN, Yu. B.

RMN/ /R·160/5·MN'73
Doc'70

(5)

Babenko, K. I., V. N. Ivanova, E. P. Kazandzhan, M. A. Kukarkina, and Yu. B. Radvogin. Nonsteady flow around the leading section of a blunt body. IN: Trudy II Respublikanskoy konferentsii po aerogidromekhanike, teploobmenu i massoobmenu. Sektsiya "Aerodinamika bol'shikh skorostey". Kiyev, Kiyevskiy universitet, 1971, 29-43. (RZhMekh, 5/72, no. 5B325)

A numerical solution is given for the problem of supersonic flow around the leading section of a blunt body with a plane of symmetry in inert gas flow. A normalizing system of curvilinear coordinates is used, in which the calculated region has fixed boundaries. A finite-difference method is generalized and developed similar to an established one. The principal variation of the proposed method is associated with calculation of the frontal shock wave and the construction of a well-defined system of difference equations. Finite-difference approximation is employed for the derivatives together with the corresponding equation coefficients. The nonlinear system of difference equations obtained is solved by an iteration method, the complete system being divided into subsystems pertaining to each of the three spatial variables. The indeterminate form of the difference equations on the zero radial line is shown. The algorithm developed is used for the determination of steady supersonic flow around triaxial ellipsoids and ellipsoids of revolution. Results of numerical calculations are presented.

RADVOGIN, Yu. B.

USSR

UDC 539.12

RADYuK, A. F., and FEDEROV, F. I., Academician of the Academy of Sciences of the Belorussian SSR, Institute of Physics, Academy of Sciences of the BSSR, Minsk.

"A Fermion with Anomalous Magnetic Moment in the Field of a Plane Electromagnetic Wave"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 5, 1973, pp 1091 - 1093

Abstract: In 1937, D. M. Volkov first obtained an exact solution for a Dirac electron in the field of a plane electromagnetic wave. In Volume 174 of this journal, F. I. Federov suggested a general method for finding exact solutions for particles with various spins in such a field. This work applies this method for particles with a spin of 1/2, taking Pauli interaction into account. It is shown that Pauli interaction reduces the degeneracy which would otherwise be observed.

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USSR UDC: 621.391

RADYUK, L. Ye and TERPUGOV, A. F.

"Optimal Energy Distribution in a Multi-Channel System Signal Search"

Kiev, Izvestiya VUZ--Radioelektronika, Vol 14, No 1, 1971, pp 89-93

Abstract: The analysis of this paper relates to a radar system in which the problem of signal search is equivalent to the search for a target in a given sector which can be accelerated by controlling the energy of the probing pulses in accordance with the results of observations. The purpose of the paper is to find an optimal expression for this energy control, and to estimate the possible gain thus achieved. Considered is a system in which continuous observation of the channels is characterized by two quantities: the false alarm probability, and the average time elapsing between the appearance of the signal and its detection. The optimal condition is that this average time be a minimum.

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RADYUK L Ye.

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# TECHNICAL TRANSLATION

ARM | FSTC-HT-23-2015-72
29 Nov 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SCHEVCHENKO

Translated for FSTC by ACSI

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- Title Page -

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USSR UDC 621.385.632

ALESKOVSKIY, A.M., ZAMOROZKOV, B.M., MEL'NIKOV, V.F., MURAV'YEV, A.A., RADYUK, O.M.

"Experimental Investigation Of Persistence Of Beam Plasma In TWT"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 59-63

Translation: The paper investigates the persistence of disintegrating beam plasma in a medium-power traveling-wave tube, with the object of detecting possible distortions of the information on the structure of the beam by use of the photoregistration method. It is established that in the region where glow fills all the flight channel, distortions are possible, caused by the appearance in the beam of slow secondary electrons. 2 ref. Summary.

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USSR UDC 621. 385. 032. 26: 621. 385. 6: 621. 517. 3 (088.8)

MURAV'YEV, A.A., MALAKHOV, I.K., ZAMOROZKOV, B.M., RADYUK, O.M., SINITSYN, P.R., YUDZON, O.I.

"Method Of Investigation Of The Structure Of An Electron Beam"

USSR Author's Certificate No 265176, filed 18 Sept 67, published 17 June 70 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A124P)

Translation: A method is proposed for investigation of the structure of an electron beam without the introduction into it of perturbations which are employed in the evaluation of the quality of electron beams under the dynamic operating conditions of electrovacuum microwave devices. The method is based on use of the glow of the beam and makes it possible to observe simultaneously on the screen of a monitoring television device the form of the beam and the distribution of the intensity of its glow at any cross section of the beam being inspected, and also operationally to change the parameters of the beam, visually selecting the form of the beam and the distribution of its density. G.B.
1/1

USSR R UDC 621.385.632.26:621.385.5

RADYUK, C.M., MURAV'YEV, A.A., KALININ, YU.A.

"Evaluation Of The Effect Of Changes Of The Regimes Of A Gun On The Behavior Of An Electron Beam"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology--Collection Of Works), Saratov, 1970, pp 56-61 (from RZh--Elektronika i yeye primeneniye, No 6, June 1970, Abstract No 6A132)

Translation: It is shown that in a traveling-wave tube with periodic magnetic focusing, shrinkages (osedaniya) of the current of the gun in the decelerating system bear a local character. The shrinkage density of the current does not always depend on the over-all current of the shrinkage. Local shrinkages of the current are shifted in the system during change of operating conditions of the traveling-wave tube. Summary.

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USSR UDC 534.647:628.822

BARANOV, I. A., and RADYUKHIN, A. A.

"Device for Measuring the Axial Vibration of Small Radial-Thrust Ball Bearings"

Vibratsion. tekhnika No 2 — V sb (Vibration Engineering. No 2 -- Collection of Works), Moscow, 1970, pp 142-147 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 2, Feb 71, Abstract No 2.32.655)

Translation: This article contains a description of a specially developed device for measuring the axial vibration of ball bearings. The characteristic features of the device include the following: the presence of two self-adjusting mountings which permits elimination of the effect of misalignments of the ball bearing rings on the magnitude of the vibration and low noise level — no more than 1-5%. There are 3 illustrations.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ECONOMY AND ORGANIZATION OF BUNKER OPERATIONS -U-

AUTHOR--RADYUKIN, N.S.

R

COUNTRY OF INFO--USSR

SOURCE--ECONOMY AND ORGANIZATION OF BUNKER OPERATIONS (EKONOMIKA I ORGANIZATSIYA BUNKEROVOCHNYKH OPERATSIY) MOSCOW, TRANSPORT, 1970, 72 PP
DATE PUBLISHED--------70

SUBJECT AREAS--PROPULSION AND FUELS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--LIQUID FUEL, WATER TRANSPORTATION, SEA TRANSPORTATION, ECONOMICS, COMPUTER APPLICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3009/0300 STEP NO--UR/0000/70/000/000/0072/0072

CIRC ACCESSION NO--AM0139126
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AM0139126

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION 3. CHAPTER I BUNKER OIL BASE OF A SEA PORT AND RATE FIXING OF ITS CAPACITY 5. II ORGANIZATION OF FILLING SHIP BUNKERS WITH LIQUID FUEL IN A SEA HARBOR 37. III EXPENDITURE FOR FILLING SHIP BUNKERS WITH LIQUID FUEL 48. IV THE ALLOCATION OF BUNKER OIL BASES AT SEA RESERVOIRS 52. LITERATURE 71. THE AUTHOR EXAMINES THE RESULTS OF HIS INVESTIGATION OF THE COMPLEX PROBLEM OF FURTHER DEVELOPMENT OF A NETWORK OF BUNKER OIL BASES. HE USES MODERN ECONOMICO MATHEMATICAL METHODS AND COMPUTER TECHNIQUE. THIS MATERIAL IS OF SCIENTIFIC AND PRACTICAL SIGNIFICANCE.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PARALLEL CONSECUTIVE STAGES OF OXYGEN AND HYDROGEN PEROXIDE
REACTIONS. II. OXIDATION AND REDUCTION OF HYDROGEN PEROXIDE ON A
AUTHOR-(02)-TARASEVICH, M.R., RADYUSHKINA, K.A.

R

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(3), 376-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL OXIDATION, HYDROGEN PEROXIDE, CHEMICAL REACTION
MECHANISM, ELECTRODE POTENTIAL, PLATINUM ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1129 STEP NO--UR/0364/70/006/003/0376/0378

CIRC ACCESSION NO--AP0121688

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0121688

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AFTER ACTIVATION OF DISK AND RING ELECTRODES BY IMPOSING TRIANGULAR SWEEP IN A HE ATM. H SUB2 O SUB2 (3 TO 5) TIMES 10 NEGATIVE PRIME7 MOLE-CM PRIME3) WAS INTRODUCED INTO 0.1N KOH SOLN. THE LIMITING DIFFUSION CURRENT WAS MEASURED ON THE RING AT PHI EQUALS 1.2 AND 0.2 V. POLARIZATION CURVES OF THE OXIDN. AND REDN. OF H SUB2 O SUB2 ON PT ARE GIVEN. ANODIC AND CATHODIC PROCESSES OCCURRED WITH RELATIVELY LOW OVERVOLTAGES. AT THE STEADY STATE POTENTIAL OF SIMILAR TO 0.85 V, THE ANODIC AND CATHODIC CURRENTS SUDDENTLY INCREASED WITH INCREASE IN POTENTIAL, WHICH INDICATED THE CONTRIBUTIONS OF THE RESP. REVERSE REACTIONS. COMBINATION RATE CONSTS, CHARACTERIZING THE REACTION OF H SUB2 O SUB2 WERE CALCD. THE REACTION MECHANISMS OF H SUB2 O SUB2, WHEN H SUB2 O SUB2 IS PRESENT IN THE SOLN. BULK AND WHEN IT IS FORMED ON THE PT ELECTRODE SURFACE DURING REDN. OF MOL. O SUB2, ARE NEARLY THE SAME. FACILITY: INST. ELEKTROKHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PARALLEL CONSECUTIVE STAGES OF OXYGEN AND HYDROGEN PEROXIDE REACTIONS. I. REDUCTION OF OXYGEN ON A PLATINUM ELECTRODE -U-

AUTHOR-(03)-TARASEVICH, M.R., BURSHTEYN, R.KH., RADYUSHKINA, K.A.

R

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(3), 372-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OXYGEN, CHEMICAL REDUCTION, HYDROGEN PEROXIDE, PLATINUM ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1130 STEP NO--UR/0364/70/006/003/0372/0375

CIRC ACCESSION NO--AP0121689
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121689

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE CONSTS. OF THE INDIVIDUAL STEPS IN THE REDN. OF O SUB2 ON PT ELECTRODE IN ALK. SOLN. WERE CALCD. EXPTS. WERE CONDUCTED IN 0.1N KOH WITH A PT DISK-PT-PT RING ELECTRODE. POLARIZATION CURVES FOR THE IONIZATION OF O SUB2 ON PT ELECTRODE IN 0.1N KOH AND THE LIMITING CURRENT OF THE OXIDN. OF H SUB2 O SUB2 ON THE RING AS A FUNCTION OF THE DISK POTENTIAL ARE GIVEN FOR VARIOUS ROTATION RATES. AT 0.6-0.2 V, A LIMITING CURRENT PLATEAU FOR A 4 ELECTRON PROCESS WAS OBSD. AND AT MORE POS. POTENTIALS THE RATE OF THE PROCESS ON THE REDUCED ELECTRODE WAS CORRESPONDINGLY HIGHER. WITH INCREASING TIME OF THE ELECTRODE AT 0.75 V, THE RATE OF THE 4 ELECTRON PROCESS AND THE CONVERSION OF H SUB2 O SUB2 DECREASED, EVIDENTLY BECAUSE OF CHANGES IN THE SURFACE RESULTING FROM OXIDES ACCUMULATING, AND THE SIMULTANEOUS OCCURRENCE OF 2 AND 4 ELECTRON REACTION OF O SUB2 REDN. WAS INDICATED. A COMBINATION CONST. CHARACTERIZING THE OXIDN. PROCESS (K SUB2 PRIME), REDN. (K SUB3), AND CATALYTIC DECOMPN. (K SUB4) OF H SUB2 O SUB2 WAS CALCD. AT LOW POS. POTENTIALS, THE RATE OF THE CATALYTIC DECOMPN. OF H SUB2 O SUB2 AT PHI EQUALS 0.8-0.7 V WAS INDEPENDENT OF PHI, BUT AT PHI SMALLER THAN 0.65 V, ONLY THE ELECTROCHEM. REDN. OF H SUB2 O SUB2 WAS PRESENT, DUE TO THE DECREASE OF CHEMISORBED O SUB2 ON THE ELECTRODE SURFACE. THE REDN. OF O SUB2 ON PT IN ALK. SOLN. TAKES PLACES BY A 2 AS WELL AS A 4 ELECTRON MECHANISM. THE LATTER MAY BE DUE TO THE DISSOCN. OF CHEMISORBED O SUB2, LEADING TO THE FORMATION OF AT. ADSORBED O.

FACILITY: INST. ELEKTROKHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CHEMISORPTION OF HYDROGEN AND OXYGEN ON PLATINUM GOLD ALLOYS -U-

AUTHOR-(04)-RADYUSHKINA, K.A., BURSHTEYN, R.KH., TARASEVICH, M.R., KUPRINA, V.V.

R

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA, FEB. 1970, 6, (2), 234-238

DATE PUBLISHED----FEB70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMISORPTION, HYDROGEN, OXYGEN, PALTINUM ALLOY, GOLD ALLOY, GAS ADSORPTION, BIBLIOGRAPHY, METAL CONTAINING GAS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0349 STEP NO--UR/0364/70/006/002/0234/0238

CIRC ACCESSION NO--AP0124106

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0124106
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHEMISORPTION OF H AND O ON THE SURFACE OF PT AU ALLOYS WAS STUDIED AS A FUNCTION OF ALLOY COMPOSITION IN ACID AND ALKALI SOLUTIONS. METHODS EMPLOYED INCLUDED X RAY SPECTRAL ANALYSIS AND THE PLOTTING OF OF POTENTIODYNAMIC CHARGING CURVES. IN THE CASE OF O THE ALLOY COMPONENTS ACTED ADDITIVELY IN BOTH TYPES OF SOLUTION. IN THE CASE OF H THE DEGREE OF ADSORPTION REMAINED INDEPENDENT OF ALLOY COMPOSITION YP TO 50PERCENT AU. FOR HIGHER PROPORTIONS OF AU THE EFFECT OF THE BETA PHASE OF THE ALLOY BECAME APPRECIABLE AND THE AMOUNT OF CHEMISORBED H DIMINISHED.

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USSR

UDC 621.317.373.538.632

KOTOSONOV, N. V., KHLYAVICH, YA. L., ZVEREV, G. F., RADZEVUDZE, V. G., GLAUBERMAN, A. S.

"Phase-Sensitive Detector with a Superhigh-Frequency Hall Data Unit"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy--Radioelektronika, Vol XIV, No 8, 1971, pp 946-947

Abstract: A study is made of the operation of phase sensitive detectors based on superhigh-frequency Hall data transmitters. Measurements were taken at a frequency of 600 megaHertz and the basic part of the measurement unit was a coaxial magnetic field resonator-concentrator. The dependence of the constant component of the Hall voltage on the phase shift angle and also the estimation of the linearity of the characteristic with respect to both components were studied. When measuring the linearity of the characteristic and its dynamic range, fixed attenuators were included in the measured or reference channel, and the results of these measurements are presented in graphical form. The linearity of the Hall data unit characteristic as a function of the magnetic field intensity and current in the dynamic range of no less than 30 decibels was experimentally confirmed. The experimental range was limited by the sensitivity of the indicator and the power of the generator considering attenuation in the decoupling elements and it is not limiting.

UDC: 621.317.77:538.632

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KOTOSONOV, N. V., KHLYAVICH, Ya. L., ZVEREV, G. F., RADZEVUDZE, V. G., GLAUBERMAN, A. S.

"On the Possibility of Constructing a Phase Meter With Direct Readout Based on a Hall Pickup for the SHF Range"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 95-96 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A328)

Translation: It is pointed out that when a Hall pickup is subjected to a harmonically varying current and a magnetic field, a constant EMF is developed across the Hall leads which is proportional to the cosine of the angle of phase displacement between the vectors of current and magnetic field strength. This emf may serve as a measure of the phase displacement, and is convenient for purposes of indication. The feasibility of building a phase meter based on this principle is checked out on a frequency of 600 MHz. A schematic diagram of the installation is presented. The difference between theoretical and experimental data is no more than 5 percent. Ambiguity in the phase angle reading may be eliminated by including a small

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KOTOSONOV, N. V. et al., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2, Novosibirsk, 1970, pp 95-96

elongating insert in the measurement channel. Possible systematic errors (thermo-emf etc.) can be completely compensated. E. L.

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USSR UDC 599.32:576.312

VORONTSOV, N. N., MALYGINA, N. A., and RADZHABLI, S. I., Laboratory of Evolutionary Ecology, Institute of Biology and Soil Science, Far Eastern Science Center of the Academy of Sciences USSR (Vladivostok), and Institute of Cytology and Genetics, Siberian Laboratory of population Genetics Evolution and Karyosystematic, Department of the Academy of Sciences USSR (Novosibirsk)

"Chromosomes of Jerboas (Rodentia, Dipodidae)"

Moscow, Zoologicheskiy Zhurnal, No 12, 1971, pp 1,853-1,860

Abstract: A description is given of the chromosome sets of 15 jerboa species of the subfamilies Cardiocraniinae (1), Allactaginae (9), and Dipodinae (5). The diploid number of 13 species is 48, except in Salpingotus crassicauda in which 2n = 46 and in Scirtopoda telum in which 2n = 58. The karyotypes are strikingly similar. The chromosome sets of three species of the genus Allactaga (jaculus, severtzovi, saltator) are alike, as are those of Pygerethmus platyrus, P. vinogradovi, P. zhitkovi, and Alactagulus acontion. It was concluded from the constancy of the chromosome numbers and the insignificant variability of $NF^a$ = 86 - 92 that the evolution of jerboas was characterized by pericentric inversions rather than by the Robertsonian rearrangements characteristic of other mammalian groups. Cytogenetic mechanisms are not believed to play an

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VORONTSOV, N. N., et al., Zoologicheskiy Zhurnal, No 12, 1971, pp 1,853-1,860

important part in the reproductive isolation existing between sympatric species of this family. A somewhat different classification of the superfamily Dipodoidea is suggested on the basis of karyological and morphological data.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SOLUBILITY OF CARBON DIOXIDE IN ORGANIC SOLVENTS -U-

AUTHOR-(05)-PODVIGAILOVA, I.G., ZEYNALOV, B.K., KRUGLIKOV, A.A., RADZHABOV, D.T., SHAGIDANOV, E.N.

COUNTRY OF INFO--USSR

R

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(5), 338-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CARBON DIOXIDE, PETROLEUM HYDROCRACKING, PHOSPHATE, ORGANIC SOLVENT, SOLUBILITY, PETROLEUM RESIDUE, XYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0340 STEP NO--UR/0064/70/046/005/0338/0339

CIRC ACCESSION NO--AP0137444

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137444

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. USED TO DET. THE SOLY. (IN VOLS.-VOL.) OF CO SUB2 IN LIQS. OR SOLNS. IS DESCRIBED. THE SOLY. IN 58 LIQS. TESTED RANGED FROM 126 FOR ET SUB2 NH TO 0.4 TRIXYLYLENE PHOSPHATE. THE FOLLOWING SUBSTANCES MAY FIND USE IN THE REMOVAL OF ACIDIC GASES FROM AIR OR INDUSTRIAL GASES: ET SUB2 NH, POLYETHYLENE POLYAMINE (2PERCENT SOLN. ABSORBS 7.6 VOLS. CO SUB2-VOL), AND PLASTIZAN 30A (ETHYLENE GLYCOL C SUB7-9 FATTY ACID ESTERS) (1 VOL. ABSORBS 2.7 VOLS. CO SUB2), WHICH IS PRODUCED FROM INEXPENSIVE AND AVAILABLE PETROLEUM CRACKING RESIDUES.

UNCLASSIFIED

USSR

UDC 517.53:517.946

RADZHABOV, N., Mathematics Division and Computer Center, Academy of Sciences Tadzhik SSR

"On the Solution of the Directional Derivative Problem in a Half-Space for Some Elliptic-Type Equations"

Dushanbe, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 15, No 1, 1972, pp 8-11

Abstract: The article considers the equations

$$\frac{\partial^2 U}{\partial x^2} + \frac{\partial^2 U}{\partial y^2} + \frac{\mu}{y}\frac{\partial U}{\partial y} + k^2 U = 0 \qquad (1)$$

and

$$\frac{\partial^2 \Phi}{\partial x^2} + \frac{\partial^2 \Phi}{\partial x_1^2} + \cdots + \frac{\partial^2 \Phi}{\partial x^2_{k+1}} + \lambda^2 \Phi = 0. \qquad (2)$$

If the region D lies wholly in the half plane $y > 0$, differential equation (1) in this region is an elliptic-type differential equation with analytic

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RADZHABOV, N., Doklady Akademii Nauk Tadzhikskoy SSR, Vol 15, No 1, 1972, pp
8-11

coefficients. $M_{\mu}(S^+)$ designates a class of real functions $U(x,y)$ analytic for
x and y in $S^+$, symmetric relative to $y(U(x, -y)=U(x, y))$, and in the neighbor-
hood of a point at infinity representable in the form $U(x,y,\tau)=U_n(x,y,\tau)/$
$y^{[\mu/2]}$ $0 \leqslant \tau \leqslant 1$. The author first solves the directional derivative problem
for equation (1) in the class $M_{\mu}(S^+)$ and in a class of weighted functions for
$\mu < 0$, then solves the directional derivative problem for equation (2) in a
class of functions which depend on x and r, when the condition is given on the
hyperplane $x=0$. Unlike other works dealing with the directional derivative
problem for elliptic-type equations in the multidimensional case, the present
article considers a half-space. Explicit formulas are also obtained for the
solutions.

The author thanks L. G. MIKHAYLOV, Corresponding Member of the Academy of
Sciences Tadzhik SSR, for his discussion and advice.

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USSR

RADZHABOV, N. UDC: 517.948.32

"On the Solution of Some Two-Dimensional Integral Equations With a Singular Line"

Dushanbe, IAN Tadzhikskoy SSR, Otdeleniye Fiziko-Matematicheskikh i Geologo-Khimicheskikh Nauk, No 1(39), 1971, pp 3-15

Abstract: The author considers two-dimensional singular integral equations of the following types:

$$f(z) + \frac{\lambda}{\pi} \iint_D \frac{\widetilde{M}(z, \zeta)}{(\zeta - z)(\zeta - \bar{z})} f(\zeta)\, d\xi d\eta = g(z) \qquad (1)$$

and

$$f(z) + \frac{\lambda}{\pi} \iint_D \frac{\widetilde{M}(z, \zeta)}{(\zeta - z)(\zeta - \bar{z})} \overline{f(\zeta)}\, d\xi d\eta = \omega(z), \qquad (2)$$

when $\widetilde{M}(z, \zeta) = \theta(|z|, |\zeta|)$, $\widetilde{M}(z, \zeta) = M(|z|, |\zeta|)\theta(|z|, |\zeta|)$,

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RADZHABOV, N., IAN TadzhSSR, Otd. Fiz.-Mat. i Geol.-Khim. Nauk, No 1(39), 1971, pp 3-15

where $\theta(|z|, |\zeta|)$ is a homogeneous function of zero measure, $M(|z|, |\zeta|)$ is a continuous function of its own arguments, $D$ is a circle of unit

radius; the kernel of these equations when $z = \bar{z} (-1 < x < 1)$ has a second-order singularity. The class $W^*_\beta$ is introduced, designating a class of

functions $W(z)$ represented in the form $W(z) = \frac{\tilde{W}(z)}{|z|^\beta}$, where $0 < \beta < 1$, and $\tilde{W}(z)$

is a function from the classes $C, M, L_p$ satisfying the condition $\tilde{W}(z) + \tilde{W}(\bar{z}) = \omega(r)$, $r = \sqrt{x^2 + y^2}$. In this class, by the method of expanding $\tilde{W}(z)$ in a Fourier series, these equations are reduced to one-dimensional integral equations with homogeneous kernels of degree 1 or with kernels consisting of the product of a homogeneous function by a continuous function. This is taken as a basis for finding the number of solutions of the homogeneous problem and the number of conditions of solvability. In some special cases, the solution is found in explicit form. Bibliography of five titles.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--WHAT IT MEANS TO BE AN ENGINEER -U-

AUTHOR--RADZHABOV, N.

R

COUNTRY OF INFO--USSR

SOURCE--SOTSAILISTICHESKAYA INDUSTRIYA, JUNE 16, 1970, P 2, COL 4

DATE PUBLISHED--16JUN70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--METALLURGIC PERSONNEL, MACHINE TOOL INDUSTRY, MACHINERY MANUFACTURING PLANT, PETROLEUM INDUSTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1101 STEP NO--UR/0533/70/000/000/0002/0002

CIRC ACCESSION NO--AN0109220
ZZZZZZZZZZZZ UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AN0109220

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES THE BAKU MACHINE CONSTRUCTION PLANT AS A "LARGE EXPERIMENTAL BASE" WHICH SERVES THE NEEDS OF THE OIL PRODUCING INDUSTRY. THE PLANT CENTRAL LABORATORY IS HEADED BY M. SANADZE, THE SPECIAL DESIGN BUREAU BY SH. ALIYEV, A. AYRYAN IS THE CHIEF ENGINEER. ALL THREE ARE CANDIDATES OF TECHNICAL SCIENCES. SABZALI MAMEDOV, CHIEF METALLURGIST AND CANDIDATE OF TECHNICAL SCIENCES, AND ENGINEER TAMARA MORGUN ARE ALSO MENTIONED. THE PLANT COLLABORATES WITH THE AZERBAYDZHAN SCIENTIFIC RESEARCH INSTITUTE OF PETROLEUM MACHINE CONSTRUCTION.

ZZZZZZZZZZZZ UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MECHANISM OF NUCLEOPHILIC SUBSTITUTION -U-

AUTHOR-(04)-BILEVICH, K.A., BUBNOV, N.N., OKHLOBYSTIN, O.YU., RADZHABOV, N.G.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSR 1970, 191(1), 119-21 (PHYS CHEM)

R

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE DERIVATIVE, CHLORINATED ORGANIC COMPOUND, FREE RADICAL, CHEMICAL REACTION MECHANISM, EXCHANGE REACTION, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0712 STEP NO--UR/0020/70/191/001/0119/0121

CIRC ACCESSION NO--AT0124382

UNCLASSIFIED

2/2 015
CIRC ACCESSION NO--AT0124382 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM DATA OF THE RATE OF INITIAL FORMATION OF ARO RADICALS AS RELATED TO CONCN. OF ARO PRIME NEGATIVE ION AND TRITYL CHLORIDE IN TETRAHYDROFURAN SOLN. AT VARIOUS CONCNS. IN SOLN. IT WAS CONCLUDED THAT THE FORMATION OF SUCH ARO RADICALS OCCURS BY 2 PATHS. THEY FORM ACCORDING TO A CARBONIUM MECHANISM THAT IS KINETICALLY IDENTICAL WITH THE SWAIN TYPE REACTIONS, AND THEY ALSO FORM FROM INTERACTION OF THE ARO PRIME NEGATIVE ION WITH TRITYL CATION FORMED BY DISSOCN. OF PH SUB3 CCL, WHICH IS A PURELY S SUBN I INGOLD TYPE REACTION OF 1ST ORDER IN RESPECT TO SUBSTRATE AND ZERO ORDER IN RESPECT TO THE NUCLEOPHILE. THE CARBONIUM PORTION OF THE PROCESS IS DESCRIBED BY SUMMARY 3RD ORDER KINETICS: 1ST ORDER IN RESPECT TO THE HALIDE AND 2ND ORDER IN RESPECT TO PHENOXIDE ION. THE REACTION STUDIED WAS THAT OF PH SUB3 CCL AND P,ME SUB3 CC SUB6 H SUB4 OK. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 537.533.8

ARIFOV, U. A., DZHEMILEV, N. Kh., and RADZHABOV, T. D.

"Anisotropy of Secondary Electron Emission in the Passage of $L_i$+ Ions Through Cu Single Crystals

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 2, Feb 71, pp 252-254

Abstract: The authors studied secondary ion-electron emission in the passage of lithium ions in oriented thin films. A vacuum instrument was used for the experiments, supplemented by a goniometric device permitting variation of the angle of incidence of the ion bean $\theta$ with respect to the normal of the target from -30 to +60° as well as the creation of azimuthal rotation $\varphi$ and variation of the angle of detection $\alpha$. Thin single-crystal Cu films were the target. "Inversion" of ion-electron emission was found with variation of the angle of beam incidence.

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USSR

RADZIKCVSKAYA, S. V., and BUKHANEVICH, V. F. UDC 669.27.051

"Some Chemical Properties of Tungsten Disulfide"

V sb. Khal'kogenidy (Chalcogenides--collection of works), Vyp 2, Kiev, "Naukova Dumka", 1970, pp 159-162 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G169)

Translation: Results are presented of a study of the chemical properties of $WS_2$ produced by the interaction of W anhydride with $H_2S$ at a temperature of 1400°. $WS_2$ can be completely decomposed by acids and solutions of oxidants, and partially by decomposed alkalis, and does not interact with organic solvents. The chemical composition of $WS_2$ does not change during heating in an $N_2$ stream up to 600° and higher. $WS_2$ is stable in Ar up to 1400° and in vacuum to 1100° it oxidizes in an $O_2$ stream, beginning at 300°. 2 tables. S. Krivonosova

1/1

USSR UDC: 621.362.2(088.8)

SAMSONOV, G. V., GORYACHEV, Yu. M., KUTSENOK, T. G., RADZIKOVSKAYA, S. V., TEL'NIKOV, Ye. Ya., Institute of Problems in the Science of Materials, Academy of Sciences of the UkrSSR

"A Thermoelectric Material Based on Cerium Sulfide"

USSR Author's Certificate No 251037, filed 28 May 68, published 22 Jan 70 (from RZh-Elektrotekhnika i Energetika, No 10, Oct 70, Abstract No 10A162 P)

Translation: A thermoelectric material based on N-type cerium sulfide is proposed. As a distinguishing feature of the patent, the thermoelectric figure of merit is improved by doping $CeS_{1.35-1.37}$ with 1-2 at.% Nb.

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1/3 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--A TEN YEAR EXPERIMENT IN TREPANOIRIDENCLEISIS OPERATION IN GLAUCOMA
CASES -U-
AUTHOR-(02)-RADZIKHOVSKIY, B.L., TITENKO, K.S.

COUNTRY OF INFO--USSR

SOURCE--OFTALMOL ZH 25(2): 111-117. 1970.

R

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EYE DISEASE, VISUAL DEFECT, BIOLOGIC OPERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605015/F12 STEP NO--UR/0601/70/025/002/0111/0117

CIRC ACCESSION NO--AP0140629
UNCLASSIFIED

2/3 020
CIRC ACCESSION NO--AP0140629 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMMEDIATE AND REMOTE RESULTS OBTAINED FROM ANTIGLAUCOMATOUS OPERATION OF TREPANOIRIDENCLEISIS ARE ANALYZED. IMMEDIATE RESULTS WERE STUDIED ON 247 PATIENTS WITH PRIMARY AND SECONDARY GLAUCOMA. IN CASE OF PRIMARY GLAUCOMA THE OPERATION OF TREPANOIRIDENCLEISIS WAS PERFORMED AT ALL STAGES OF GLAUCOMA AND IN THE PRESENCE OF INDICATIONS TO THIS OPERATION; OF THEM 56 PATIENTS WERE SUBJECTED TO THE OPERATION DURING ACUTE ATTACK OF GLAUCOMA. IMMEDIATELY AFTER THE OPERATION NORMILIZATION OF INTRAOCULAR TENSION WAS RECORDED IN 90.6PERCENT, FUNCTIONS OF THE EYE IMPROVED IN 42.2PERCENT, AND NO CHANGE WAS ACHIEVED IN 41PERCENT OF CASES. REMOTE RESULTS (1-10 YR FOLLOW UP) WERE ANALYZED IN 147 PATIENTS WITH PRIMARY GLAUCOMA AND 13, WITH SECONDARY GLAUCOMA. APART FROM THIS, RESULTS OF OPERATION WERE ANALYZED IN PATIENTS WITHTHE FOLLOW UP PERIOD RANGING FROM 1 TO 4 YR AND FROM 5 TO 10 YR FOLLOWING OPERATION. WITHIN THE 1ST 4 YR FOLLOWING OPERATION A STABLE NORMALIZATION OF INTRAOCULAR TENSION PERSISTED IN 84.6PERCENT, AND 5-10 YR LATER, IN 82.6PERCENT. IN MORE REMOTE TERMS OF OBSERVATION THE NUMBER OF PATIENTS WITH THE IMPAIRMENT OF VISUAL FUNCTIONS BECAME HIGHER. A STUDY WAS ALSO CARRIED OUT IN RESPECT TO THE STATE OF VISUAL FUNCTIONS IN REMOTE TERMS, DEPENDING ON THE DEGREE OF COMPENSATION OF GLAUCOMATOUS PROCESS, IN 122 PATIENTS, WHEREBY IT WAS STATED THAT VISUAL FUNCTIONS BECAME LOWER, AND A SUGGESTION IS EXPRESSED CONCERNING THE CAUSES OF VISUAL FUNCTION IMPAIRMENT IN PATIENTS WITH NORMALIZED INTRAOCULAR TENSION.

UNCLASSIFIED

3/3 020

UNCLASSIFIED

CIRC ACCESSION NO--AP0140629

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--THE STUDY CARRIED OUT ALLOWED TO STATE THAT THE OPERATION OF TREPANOIRIDENCLEISIS RATHER EFFECTIVE AS TO ITS HYPOTENSIVE ACTION, BUT, AS ALL OTHER ANTIGLAUCOMATOUS OPERATIONS, NOT IN ALL CASES IT CAN PREVENT THE IMPAIRMENT OF VISUAL FUNCTIONS. FACILITY: DEP. EYE DIS. CHERNOVTSY MED. INST., CHERNOVTSY, USSR.

UNCLASSIFIED

Surgery

USSR UDC 616.12-089-78]-059:615.38]-07:612.6.02.017.1

SOLOV'YEV, G. M., RADZIVIL, G. G., KORENEVSKAYA, V. A., and MIKHEYEVA, N. Ye., Institute of Clinical and Experimental Surgery, Ministry of Health USSR, and Institute of Organ and Tissue Transplantation, Academy of Medical Sciences USSR, Moscow

"Characteristics of the Immunobiological State of Patients Operated on Under Conditions of Extracorporeal Circulation"

Moscow, Kardiologiya, Vol 10, No 10, Oct 70, pp 45-50

Abstract: The immunobiological state of patients with acquired and congenital heart diseases was determined before and after surgery performed with the help of extracorporeal circulation and without it. The criteria for determining the immunological state of the patients were: the complement titer; titer of alpha- and beta-hemagglutinins; and lymphocyte transformation into blasts in a culture of phytohemagglutinins. The effect of surgery on the complement titer was studied in 30 patients, 18 of whom were operated on with the help of extracorporeal circulation and 12 without it. Blood for titration was taken before the operation and in the early postoperative period. It was found that in 25 of the 30 patients, particularly those operated on with the help of extracorporeal

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USSR

SOLOV'YEV, G. M., et al, Kardiologiya, Vol 10, No 10, Oct 70, pp 45-50

circulation, the complement titer dropped from the 0.02-0.06 presurgical norm (as determined by 100% hemolysis with a hemolytic system of a 3 percent suspension of ram erythrocytes and hemolytic serum in a triple titer) to 0.06-0.14. The titer of alpha- and beta-hemagglutinins was studied in 24 patients, 14 of whom had undergone surgery with the help of extracorporeal circulation and 10 without it. These titers were determined by the method of salt agglutination at room temperature. A sharp decline in antibody titers during the immediate postoperative period occurred, particularly in patients who were operated on with the use of extracorporeal circulation. Complete inhibition of blast formation was noted in four patients operated on with the use of artificial circulation. The data obtained permit the conclusion that heart operations, particularly when performed under conditions in which extracorporeal circulation must be used, result in a temporary decline of the immunobiological activity of the organism. Restoration normally occurs within 7-8 days after the operation.

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1/2 023
UNCLASSIFIED
PROCESSING DATE--02OCT70

TITLE--CONGENITAL HYPOFERRIC ANEMIA AMENABLE TO VITAMIN B SUB6 TREATMENT
-U-

AUTHOR-(04)-IDELSON, L.I., RADZIVILOVSKAYA, E.G., LEVINA, D.A.,
APOLLONOVA, L.A.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 103-106

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANEMIA, VITAMINE B6, THERAPEUTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0831
STEP NO--UR/0504/70/042/003/0103/0106

CIRC ACCESSION NO--AP0102793

UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--AP0102793 UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PATIENT WITH A SHARPLY MARKED HYPOCHROMIC ANEMIA WITH A HIGH IRON CONTENT IN THE BLOOD SERUM AND IN THE TISSUES OF THE ORGANISM IS DESCRIBED. A DISORDER OF PROTOPORPHYRIN BIOSYNTHESIS FROM COPROPORPHYRINOGEN WAS REVEALED IN THIS PATIENT. PRESCRIPTION OF VITAMIN B SUB6 AND THEN PYRIDOXALPHOSPHATE PRODUCED A GOOD THERAPEUTIC EFFECT.

UNCLASSIFIED

USSR

RADZIVONCHIK, V. F., CHUKHLEV, A. N.

"Effect of Deformation Rate at Various Temperatures on the Structure and Hardness of Armco-Iron, Nickel and 1Kh18N9T Steel"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of Works), Moscow, "Nauka", 1971, pp 112-114 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1471)

Translation: Metallographic and mechanical studies of nickel, armco-iron and 1Kh18N9T steel deformed at rates from $2 \cdot 10^{-5}$ to 200 m/sec in the subrecrystallization temperature range are described. An increase in deformation rate leads to a change in the plastic deformation mechanism of the metals and alloys. Recrystallization occurs fully upon deformation in the recrystallized temperature region when the deformation rate does not exceed $3 \cdot 10^{-2}$ sec$^{-1}$. Authors abstract.

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1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--USE OF TRITIUM TARGETS FOR BETA IRRADIATION FOR EXPERIMENTAL PURPOSES -U-

AUTHOR--RADZIYEVSKIY, G.B.

R

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 70-1

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--TRITIUM, BETA SPECTRUM, IONIZATION CHAMBER, ANGULAR DISTRIBUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1883 STEP NO--UR/0120/70/001/000/0070/0071

CIRC ACCESSION NO--AP0108213

UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0108213 UNCLASSIFIED PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTRIBUTION OF ABSORBED ENERGY IN A LIGHT ATOM MATERIAL IN CONTACT WITH THE ACTIVE SURFACE OF T TARGET WAS DETD. A FLAT PARALLEL IONIZATION CHAMBER WAS USED FOR THE MEASUREMENTS WHOSE INSIDE AIR PRESSURE COULD CHANGE. THE DISTRIBUTION OF DOSES ABOVE THE TARGET APPROACHED EXPONENTIAL: P(X) EQUALS P(0)E NEGATIVE PRIMEALPHA X, WHERE P IS THE DOSE STRENGTH, ALPHA (FOR H SUB2 O) EQUALS 1.50 MU NEGATIVE PRIME1, AND X IN MU IS THE THICKNESS OF THE AIR EQUIV. MATERIAL. THE OBTAINED RESULT GAVE RISE TO A FUNCTION DESCRIBING THE DISTRIBUTION OF DOSES AROUND THE POINT T TARGET: PSI (TAU) EQUALS 1.27 ALPHA PRIME2 BAR E (E NEGATIVE PRIMEALPHA TAU)-TAU, WHERE BAR E IS THE MEAN ENERGY OF BETA SPECTRUM IN KEV, TAU IS MU, AND PSI RAD-SEC-DISINTEGRATION. FACILITY: INST. BIOFIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--EFFECT OF COOLING CONDITIONS ON THE MACROSTRUCTURE OF A BRASS BAR DURING HORIZONTAL CONTINUOUS CASTING -U-

AUTHOR--SLADOSHTEYEV, V.T., SHATAGIN, O.A., RADZIKHOVSKIY, V.A., BYKOVA, D.I., KELMAN, L.D.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(1) 73-5

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BRASS, METAL CASTING, CRYSTAL STRUCTURE, CRYSTALLIZATION, MECHANICAL PROPERTY, METAL COOLING, COOLING RATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0602 STEP NO--UR/0136/70/043/001/0073/0075

CIRC ACCESSION NO--AP0102597

UNCLASSIFIED

2/2 029

CIRC ACCESSION NO--AP0102597 UNCLASSIFIED PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COOLING CONDITIONS OF A BILLET FORMED IN A CRYSTALLIZER EXERT A DETG. EFFECT ON THE STRUCTURE OF THE CAST METAL. INCREASING THE SOLIDIFICATION RATE RESULTS IN FINER GRAIN SIZE; THIS ENHANCES THE MECH. PROPERTIES. BRASS BILLETS, HORIZONTALLY CONTINUOUSLY CAST, HAVE A DENSE STRUCTURE; NO PORES OR OTHER INTERNAL DEFECTS ARE PRESENT. RESULTS SHOW THAT THE SOLIDIFICATION RATE, WITH OTHER CONDITIONS BEING EQUAL, DEPENDS ON THE SURFACE TEMP. OF THE ROD. THE DEPENDENCE OF THE COOLING (SOLIDIFICATION) RATE ON THE RATE OF WATER FLOW DURING HORIZONTAL CONTINUOUS CASTING OF THE ALLOYS WAS STUDIED EXPTL. THE COOLING CONDITIONS WERE CHANGED BY CHANGING THE WATER FLOW RATE IN THE CU WATER COOLED JACKET. WITH INCREASING WATER FLOW RATE THE SOLIDIFICATION RATE OF EACH ZONE INCREASES. A SATISFACTORY AGREEMENT WAS OBTAINED BETWEEN EXPTL. AND THEORETICAL DATA.

UNCLASSIFIED

USSR

MIRZOYEV, A. T. and RADZIYEVSKIY, V. S.

"Modeling of Processes of Perception and Recognition of Properties of Objects with a Two-Step Basis Hierarchy"

Modelirovaniye Protsessov Vospriyatiya i Raspoznavaniya Svoystv Ob'yektov pri Dvushagovoy Bazisnoy Iyerarkhii [English version above], Tbilisi, 1972, 5 pp (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V786DEP)

Translation: A conceptual method is suggested for description of objects (events, states), based on the matrix binary logic suggested by Professor V. V. Chavchanidze. Sets of disjunctive normal forms (DNF) are formed by means of matrix filters. Each DNF, according to the learning material, takes on nontrivial value only in certain sets of characteristics. Whereas during the first stage recognition requires at least implicant passage of the analyzed portion of the examination trajectory through one of the DNF over the first filter, during the second stage the introduction of the concept of congruent recognition reduces the requirement to the trajectory to the level of agreement of only (k - σ) characteristics, where σ is the maximum coefficient of distortion of similarity -- the maximum permissible number of variable characteristics in the sequence of abstract orders of characteristics. It is easy to see that the concept formulated thus allows an artificial

USSR

MIRZOYEV, A. T. and RADZIYEVSKIY, V. S., Modelirovaniye Protsessov Vospriyatiya i Raspoznavaniya Svoystv Ob'yektov pri Dvushagovoy Bazisnoy Iyerarkhii, Tbilisi, 1972, 5 pp

intellect to recognize a significantly greater number of objects (events, states) than the limited study material allows. Author's view

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1/2 008

UNCLASSIFIED

TITLE--GRAPHICAL METHOD FOR SOLVING THE TWO BODY PROBLEM -U- PROCESSING DATE--23OCT70

AUTHOR-(02)-DAGAYEV, M.M., RADIZYEVSKIY, V.V.

R

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII VESTNIK, VOL. 4, JAN.-MAR. 1970, P. 70-77

DATE PUBLISHED-------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--NOMOGRAPH, CELESTIAL BODY MOTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1458 STEP NO--UR/0454/70/004/000/0070/0077

CIRC ACCESSION NO--AP0106214

UNCLASSIFIED

2/2 008

UNCLASSIFIED

CIRC ACCESSION NO--AP0106214 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A PRINCIPLE OF CONSTRUCTION NOMOGRANS FOR A GRAPHICAL SOLUTION OF THE TWO BODY PROBLEM. ON THE BASIS OF RADIUS VECTOR MAGNITUDES AND COMPONENTS OF THE BODY VELOCITY, GIVEN FOR THE INITIAL MOMENT, A QUICK DETERMINATION MAY BE MADE OF THE MAJOR SEMIAXIS, ORBITAL ECCENTRICITY, PERIOD OF REVOLUTION, MOMENT OF PASSAGE THROUGH THE PERICENTER, AS WELL AS POSITION AND VELOCITY OF THE BODY AT ANY MOMENT OF TIME. NOMOGRAMS CONSTURCTED FOR BODIES OF THE SOLAR SYSTEM ARE PRESENTED. FACILITY: MOSKOVSKII PEDAGOGICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

015

UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--INTEGRAL OF BIPOLAR MOMENTS IN CELESTIAL MECHANICS -U-

AUTHOR-(02)-RADZIYEVSKIY, V.V., BRAZHNIKOVA, E.F.

COUNTRY OF INFO--USSR

R

SOURCE--MOSCOW, ASTRONOMICHESKIY ZHURNAL, VOL. 47, NO. 1, 1970, PP. 211-216

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, PHYSICS

TOPIC TAGS--CELESTIAL MECHANICS, THREE BODY PROBLEM, PARTICLE MOTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0738

STEP NO--UR/0033/70/047/001/0211/0216

CIRC ACCESSION NO--AP0110462

UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AP0110462 UNCLASSIFIED PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS PROPOSED FOR REDUCING THE ORDER OF THE PROBLEM OF N BODIES BY USING THE INTEGRAL OF AREAS RELATIVE TO A FICTITIOUS N PLUS 1 BODY WITH A ZERO MASS. IT IS SHOWN IN THE EXAMPLE OF THE TWO BODY PROBLEM THAT THE USE OF SUCH AN INTEGRAL CAN REDUCE THE ORDER OF THE PROBLEM BY TWO UNITS. THE AUTHORS INTRODUCE THE CONCEPT OF THE INTEGRAL OF BIPOLAR MOMENTS, EQUAL TO THE PRODUCT OF THE KINETIC MOMENTS OF A PARTICLE RELATIVE TO TWO POLES. THE ARTICLE GIVES AN EXAMINATION OF A CASE WHEN THESE POLES ARE BODIES WITH FINITE MASSES IN THE RESTRICTED THREE BODY PROBLEM AND IN THE PROBLEM OF TWO FIXED CENTERS. IN THE LATTER CASE THE INTEGRAL OF BIPOLAR MOMENTS IS EASILY USED IN SPHERICAL COORDINATES. IT IS PROPOSED THAT THE SURFACE OF ZERO MOMENTS BE USED IN A QUALITATIVE ANALYSIS OF MOTION. IN A FUTURE ARTICLE THE AUTHORS WILL EXAMINE SOME EXAMPLES OF THE PRACTICAL USE OF THE INTEGRAL OF BIPOLAR MOMENTS IN THE PROBLEM OF TWO FIXED CENTERS AND THE POSSIBILITY OF NARROWING THE REGION OF ACTUAL MOTIONS OF THE PARTICLE WILL BE INVESTIGATED. FACILITY: GOR'KIY STATE UNIVERSITY.

UNCLASSIFIED

USSR

UDC 620.18:669.14

GRIDNEV, V. N., KONONENKO, V. A., LARIKOV, L. N., MESHKOV, YU. YA., RAFALOVSKIY, V. A., and YURCHENKO, YU. F., Institute of Metal Physics, Academy of Sciences UkrSSR

"Effect of Plastic Deformation on the Tempering Processes of a Quenched Steel"

Kiev, Metallofizika, No 39, 1972, pp 51-54

Abstract: The features taking place in the tempering of martensite by the simultaneous action of heating steel 70 to 250°C while imparting plastic deformation by drawing (almost 10%) were studied. From the obtained calorimetric and dilatometric data it follows that during this treatment, along with acceleration of the metastable phase (martensite and austenite) decomposition, being accompanied by lowering of defect density from hardening origin and weakening of the steel, another process occurs--that of martensite decomposition products as a result of plastic deformation yielding the accumulation of new defects which increase the internal energy of the system and stimulate a more complete occurrence of the phenomena of recrystallization during repeated heating. 2 figures, 7 bibliographic references.

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Veterinary Medicine

USSR

UDC 619:616.988.73-097:636.5

RAFALOVICH, A. Ye., GUSEV, N. S., BONDARENKO, I. M., and BURTSEV, V. I., All-Union Scientific Research Institute of Veterinary Virology and Microbiology

"The Effects of Aerosol Particle Dimensions on Vaccine Efficacy"

Moscow, Veterinariya, No 8, 1973, pp 39-40

Abstract: Evaluation was made of a Newcastle disease virus (NDV) $B_1$ aerosol vaccine, using 35-40-day-old chicks (pulmonary ventilation volume 0.21-0.4 liters/min; 2-10 min exposure). On the basis of hemagglutinin titers in the 103 chicks, vaccines in which the particle size ranged from 1-12 μm were 17.7 times more effective than those in which the range was 20-80 μm. The larger sized particles are retained at the upper levels of the respiratory tract and do not reach the alveoli, where absorption of the particles into the blood stream is the greatest.

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USSR

UDC 621.793.72.016-982:[669.58+669.738

ROYKH, I. L., Doctor of Chemical Sciences, Professor, RAFALOVICH, D. M., Candidate of Physical and Mathematical Sciences, Reader, RYBIN, B. S., Engineer, PUSTOTINA, S. R., Candidate of Technical Sciences, and BELORITSKAYA, Ye. L.

"Increasing the Adhesion Strength of Zinc and Cadmium Coatings Applied to Steel by Vacuum Evaporation"

Moscow, Vestnik Mashinostroyeniya, No 1, Jan 71, pages 62-64

Abstract: It is demonstrated that good adhesion between coating and steel can be produced after heating of steel in a vacuum. In order to produce good adhesion of zinc and cadmium coatings on chemically pure steel (when strong heating is undesireable), thin sublayers of lead can be used. Three condensation modes are presented, all providing satisfactory adhesion of zinc and cadmium to steel. The modes consist of chemical or electrochemical surface preparation, heating in a high vacuum ($10^{-4}$-$10^{-5}$ mm Hg) to 450°C and higher and at $10^{-3}$ mm Hg to 620°C and higher, then cooling of the steel to 50-200°C, followed by application of the coating; heating of the steel in a vacuum chamber to 270-300°C, then application of a lead layer 2-4 microns

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USSR

UDC 621.793.72.016-982:[669.58+669.738

ROYKH, I. L., Doctor of Chemical Sciences, Professor, RAFALOVICH, D. M., Candiate of Physical and Mathematical Sciences, Reader, RYBIN, B. S., Engineer, PUSTOTINA, S. R., Candidate of Technical Sciences, and BELORITSKAYA, Ye. L., Moscow, Vestnik Mashinostroyeniya, No 1, Jan 71, pages 62-64

thick under a vacuum of $10^{-3}$-$10^{-5}$ mm Hg, after which the steel is cooled to 50-200°C and the zinc or cadmium is applied; chemical or electrochemical preparation of the surface, heating to 250-300°C under a vacuum of $10^{-3}$-$10^{-5}$ mm Hg, followed by application of the zinc to the heated surface of the steel. The last mode can be used when the parts will not be strongly deformed.

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UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 040

TITLE--PROTECTIVE ZINC ALUMINUM COATING VACUUM DEPOSITED ONTO STEEL -U-

AUTHOR-(03)-BUDYUK, L.F., RAFALOVICH, D.M., ROYKH, I.L.

R

COUNTRY OF INFO--USSR

SOURCE--KIEV, TEKHNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP 68-70

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--ZINC PLATING, ALUMINUM PLATING, METAL COATING, BIBLIOGRAPHY, TROPICAL ATMOSPHERE, VACUUM SUBLIMATION, VAPOR DEPOSITION, METAL CORROSION, ATMOSPHERIC CORROSION, STEEL, CORROSION TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0418/70/000/001/0068/0070

PROXY REEL/FRAME--1999/1333

CIRC ACCESSION NO--AP0123291

UNCLASSIFIED

CIRC ACCESSION NO--AP0123291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS ARE DESCRIBED FOR OBTAINING TWO LAYER, VACUUM DEPOSITED, ZINC ALUMINUM COATINGS. THE PROTECTIVE PROPERTIES OF THESE COATINGS ARE STUDIED IN VARIOUS AGRESSIVE MEDIA. FULL SCALE TESTS WERE CONDUCTED. IT IS SHOWN THAT THE BEST PROTECTIVE PROPERTIES ARE EXHIBITED BY COATINGS WITH A ZINC THICKNESS OF 10 MICRONS AND MORE AND WITH AN ALUMINUM THICKNESS OF 5 MICRONS AND MORE. THESE COATINGS ARE RECOMMENDED FOR PROTECTION AGAINST CORROSION IN TROPICAL CLIMATES AND INDUSTRIAL ATMOSPHERES.

USSR UDC 616.895.8-008.42-085.869:615.217.34:547.944.3

BAZHIN, YE. F., and RAFALOVICH, E. G., Department of Pharmacological Research and Treatment of Psychoses, Leningrad, Psychoneurological Institute imeni V. M. Bekhterev, Psychiatric Hospital No 2, Lengorzdravotdela

"The Treatment of Hallucinatory Disroders in Schizophrenia Using Atropine Comas"

Moscow, Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakov, Vol 73, Vyp 8, 1973, pp 1223-1227

Abstract: The use of atropine comas to treat 52 shizophrenic patients with hallucinatory symptoms, who had previously appeared refractory to neuroleptic therapy, is reported. The disappearance or significant reduction of hallucinatory symptoms was observed in 30% of the cases. Following the course of atropine comas all patients were treated with haloperidol and 45% then showed notable improvement. An increase in natural reactivity due to the treatment is suggested. Observations of increased reactivity to a mixture of histamine and adrenalin after the treatment support this idea. Relapse of symptoms after one year was more pronounced in those patients who had shown only small improvement. A direct controlling action for atrophine and its analogues on the brain structures directly sensitive in hallucinatory formation is proposed.

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USSR UDC: 669.2:536.24

RAFALOVICH, I. M. and DENISOVA, I. A.

Determination of the Thermal Properties of Metallurgical Materials (Opredeleniye teplofizicheskikh svoystv metallurgicheskikh materialov), Moscow, "Metallurgiya" Press, 1971, 160 p., 76 illustrations, 55 tables, 144 bibliographic references.

This second and revised edition outlines newly developed techniques, procedures and set-ups making it possible to determine the thermal properties of ordinary and composite materials as well as the viscosity of melts. Cited for the first time are data on the thermophysical properties of various nonferrous and rare metals determined by the new techniques at different production stages. The proposed procedures and equipment designs feature simplicity and an accuracy sufficient for engineering calculations. The book is intended for engineers and technicians (metallurgists, heat engineers, physicists and chemists) associated with research laboratories of plants and institutes as well as for students in related disciplines and specialties.

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USSR

RAFALOVICH, I. M., and DENISOVA, I. A., Determination of the Thermal Properties of Metallurgical Materials, Moscow, "Metallurgiya" Press, 1971, 160 p

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Ch. I. Introduction. Methods and Equipment for Determining the Thermal Properties of Materials 7

Ch. II. Procedures and Equipment 16

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REFERENCES 155

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1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SHIFTS IN THE CONTENT OF THE BLOOD TRACE ELEMENTS IN PATIENTS WITH
ANGINA PECTORIS AND MYOCARDIAL INFARCTION AT DIFFERENT PERIODS OF THE
AUTHOR-(02)-RAFALOVICH, M.B., TARALA, G.T.

COUNTRY OF INFO--USSR

R

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 76-80

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD CHEMISTRY, TRACE ELEMENT, HEART DISEASE, PAIN,
DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0545 STEP NO--UR/0504/70/042/004/0076/0080

CIRC ACCESSION NO--AP0108762
UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108762

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS MADE A DYNAMIC STUDY OF THE CONTENT OF A NUMBER OF TRACE ELEMENTS (ZINC, COPPER, NICKEL, MAGNESIUM, LEAD, SILVER) IN THE ERYTHROCYTES, PLASMA AND WHOLE BLOOD IN 42 PATIENTS WITH ANGINA PECTORIS DURING A PAIN PAROXYSM AND AFTER IT, AND IN 39 PATIENTS WITH MYOCARDIAL INFARCTION DURING THE FIRST DAYS AND IN 1, 3, 6 AND 8 WEEKS FROM THE ONSET OF THE DISEASE. IT WAS REVEALED THAT INPPATIENTS WITH ANGINA PECTORIS DURING A PAIN PAROXYSM THE LEVEL OF SOME MICROELEMENTS STATISTICALLY SIGNIFICANTLY CHANGED. THE AMOUNT OF ZINC, COPPER, MAGNESIUM, NICKEL AND SILVER INCREASE IN THE PLASMA AND COPPER, MAGNESIUM AND SILVER, IN ERYTHROCYTES, AND COPPER, NICKEL, MAGNESIUM, LEAD AND SILVER, IN THE WHOLE BLOOD. AFTER RECUPURATION OF THE PAROXYSM OF ANGINA PECTORIS THE CONTENT OF TRACE ELEMENTS BECOMES NORMALIZED, EXCEPT FOR MAGNESIUM AND COPPER. THE AUTHORS FOUND THAT CHANGES IN THE CONTENT OF TRACE ELEMENTS IN MYOCARDIAL INFARCTION BEGIN TAKING PLACE ALREADY ON THE FIRST DAY OF THE DISEASE AND MANIFEST THEMSELVES IN AN INCREASE OF THE LEVEL OF COPPER, MAGNESIUM IN THE ERYTHROCYTES, PLASMA AND THE WHOLE BLOOD, AND NICKEL, IN THE ERYTHROCYTES AND THE WHOLE BLOOD, AND A DROP IN THE LEVEL OF ZINC, SILVER AND LEAD IN THE PLASMA. THE MOST MARKED SHIFTS CAN BE OBSERVED IN THE ACUTE PERIOD OF MYCARDIAL INFARCTION. BY THE END OF CICATRIZATION PERIOD THE CONTENT OF TRACE ELEMENTS IN THE BLOOD BECOMES GRADUALLY NORMALIZED. FACILITY: KAFEDRA FAKUL'TETSKOY TERAPII STRAVROPOL'SKOGO MED. INST.

UNCLASSIFIED

USSR UDC 669.01.539.37/38

BELOUS, M. V., and RAFALOVSKIY, V. A., Kiev Polytechnic Institute and Institute of Metal Physics, Academy of Sciences Ukr SSR

"Magnetometric Investigation of Tempering a Hardened Steel"

Kiev, Metallofizika, No 40, 1972, pp 65-68

Abstract: Magnetometric and dilatometric investigation was conducted on samples of hardened steel 70 which had been previously treated by means of electrical tempering or simultaneous electrical tempering and warm plastic deformation by drawing. It was established that there is an accelerating effect of warm deformation on the kinetics of the basic processes of tempering a hardened steel. 5 figures, 11 bibliographic references.

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## Therium and Uranium Refining

USSR UDC 550.4:541.123:546.791

RAFAL'SKIY, R. P., and OSIPCV, B. S.

"Reduction of Hexavalent Uranium With Hydrogen Sulfide in Aqueous Solutions at Elevated Temperatures and Pressures"

Moscow, Atomnaya Energiya, Vol 30, No 1, Jan 71, pp 52-53

Abstract: In testing the equilibrium concentration of uranium in relation to the amount of $H_2S$ in an ampule at different temperatures it was found that at 100 and 150° C the uranium concentration grew with increased $H_2S$ content. The assumption was made that this was caused by the formation of hydrosulfides or, more probably, hydrosulfides of uranium. At 200° C a "normal" relationship was observed; with increased concentration of the reducing agent the uranium concentration in the solution was decreased.

In experiments with bicarbonate solutions a 0.1 N solution of $NaHCO_3$ served as the initial solution. The uranium concentration in it, amounting to 0.05 g/l, was created by dissolving $UO_3$. After filling the ampule with the solution and sealing it, the ampule was heated for 76 hours at 200° C. In the bicarbonate solution the same relationship was observed as with $H_2S$.

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USSR

RAFAL'SKIY, R. P., and OSIPOV, B. S., Atomnaya Energiya, Vol 30, No 1, Jan 71, pp 52-53

For small quantities of $H_2S$ the concentration of uranium in the acid and carbonate medium was very close, but at $V_{H_2S} = 32$ cm$^3$ the concentration in the bicarbonate solution was an order of magnitude greater than in the sulfate. If the effect of the hydrogen sulfide on uranium concentration was really caused by the formation of complexes, then on the basis of experimental data it can be concluded that the bicarbonate medium is more favorable for this process.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ANALYTICAL CHARACTERISTICS OF A CYCLOIDAL TYPE MASS SPECTROMETER
MKH1203 -U-
AUTHOR-(05)-KUZMIN, A.F., KRIVTSOV, B.S., POLYAKOVA, A.A., RAFALSON, A.E.,
KHMELNITSKIY, R.A.
COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 243-5

DATE PUBLISHED--------70

R

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MASS SPECTROMETER, ATOMIC MASS, QUANTITATIVE ANALYSIS, ERROR
ANALYSIS/(U)MKH1203 MASS SPECTROMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1192 STEP NO--UR/0032/70/036/002/0243/0245

CIRC ACCESSION NO--AP0124846
UNCLASSIFIED

2/2 014
CIRC ACCESSION NO--AP0124846 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--30OCT70

ABSTRACT. THE APP. HAS BEEN DESIGNED FOR A
PERIODIC ANAL. OF THE COMPN. OF LIQ. AND GASEOUS SAMPLE IN THE RANGE OF
2-150 AT. MASS UNITS WITH A VAPOR PRESSURE LARGER THAN OR EQUAL TO 30 MM
HG AT 100DEGREES. ITS USE IS ADVANTAGEOUS IN THE ANAL. OF MICROADMIXTS.
AND IN THE ANAL. OF MIXTS. OF POLAR COMPDS.; HOWEVER, IT CAN BE USED
ALSO FOR A RAPID ANAL. OF LIQS. AND FOR SOME KINDS OF ISOTOPIC ANAL.
THE MKH1203 HAS A LOW BACKGROUND AND LOW SORPTION OF THE ANALYZED
COMPDS. ON THE INTERNAL SURFACE. TO PUMP OUT COMPDS. WITH ORDINARY
SORPTABILITY TO 0.01PERCENT OF THE INITIAL CONCN., TAKES, 3 MIN AND
COMPDS. STRONGLY ADSORBED TO 0.2PERCENT OF INITIAL CONCN., 15 MIN. THE
SENSITIVITY FOR AR IS 10 NEGATIVE PRIME4 AND 0.05PERCENT IN RECORDING
THE MASS SPECTRA BY MEANS OF A VACUUM TUBE POTENTIOMETER AND LIGHT BEAM
OSCILLOGRAPH, RESP. THE RELATIVE REPRODUCIBILITY OF THE MASS SPECTRUM
OF C SUB4 H SUB10 WITHIN 1 MONTH IS 1PERCENT. THE RELATIVE ANAL. ERROR
DEPENDS ON THE COMPN. OF THE ANALYZED MIXT. AND VARIES WITHIN 1-5PERCENT
AT THE COMPONENT CONCN. OF LARGER THAN OR EQUAL TO 10 MOLE PERCENT. IN
THE ANAL. OF MIXTS. CONTG. C SUB6 H SUB6, PHME, NONANE,
TRICHLOROETHYLENE, AND ET SUB2 O, THE MAX. ERROR WAS SMALLER THAN
2PERCENT.

UNCLASSIFIED

USSR

UDC: 621.643.002.2+411.4

Rafalyuk, V. Ya.

"Welding of 1420 mm Diameter Pipes under Mountain Conditions"

Moscow, Stroitel'stvo truboprovodov, No. 8, 1972, pp. 23-24.

Abstract: The author describes the experience of his administration in the 1420 mm pipe with 20 mm wall thickness, designed to carry pressures up to 75 kg/cm$^2$. The pipe, made of dispersion-hardened steels, was welded into sections in enclosed areas using a rotating automatic pipe welder, then carried to the installation site. The automatic pipe welder performed welding in two stages, first from the outside, then from the inside. The use of this equipment under cover allowed welding to be performed in all types of weather and increased the productivity of welding by 40%. Individual workers in the welding organization designed supplementary equipment such as grinders to finish the edges of pipes before welding, electric generators to operate the grinding equipment, hoisting and carrying equipment, etc. to be used at the installation site. The author suggests that this type of equipment should be manufactured and delivered together with the pipe welding equipment.

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CSO: 1861-W

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Physiology

USSR UDC 616.45-001/.3-056"52"

RAFIKOV, A. M. and AGADZHANYAN, N. A.

"Circadian Fluctuations in Resistance to Stress"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1971, pp 60-62

Abstract: Rats were stressed by exposing them in a pressure chamber to a simulated altitude of 12,000 m at the rate of 25 or 2 m/sec. The rats' resistance to acute hypoxia exhibited distinct diurnal variations, i.e., it was highest in the morning and lowest late in the evening. Intraperitoneal injection of animals with prednisolone (15 mg/kg) in the morning had no effect on their resistance to the simulated high altitude, but such injections late in the evening increased the rats' survival time, especially when pressure was increased at the rate of 25 m/sec. These findings are linked to the diurnal variations in the corticosteroid hormone level in the animals' blood, which is highest in the morning and lowest at night. Administration

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RAFIKOV, A. M. and AGADZHANYAN, N. A., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1971, pp 60-62

of prednisolone in the morning had no effect on resistance to acute hypoxia because of the maximum content of endogenous corticosteroids at this time.

1/2 038 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--RHEOLOGICAL PROPERTIES OF MELTS OF PLASTICIZED POLYVINYL CHLORIDE FILLED WITH AEROSIL -U-
AUTHOR-(03)-GUZEYEV, V.V., RAFIKOV, M.N., MALINSKIY, YU.M.

COUNTRY OF INFO--USSR

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SOURCE--PLAST. MASSY 1970, (3), 25-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYMER RHEOLOGY, POLYVINYL CHLORIDE, FILLER, SHEAR STRESS, VISCOUS FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0657 STEP NO--UR/0191/70/000/003/0025/0027

CIRC ACCESSION NO--AP0119565
UNCLASSIFIED

2/2 038 UNCLASSIFIED

CIRC ACCESSION NO--AP0119565 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTIVE VISCOSITY (N) OF PLASTICIZED POLY(VINYL CHLORIDE) (I) MELTS SHARPLY INCREASED WITH INCREASED AEROSIL (II) CONTENT, DUE TO THE FORMATION OF AN ADSORBED I LAYER AROUND THE II PARTICLES. THE THICKNESS OF THE ADSORBED LAYER IS INVERSELY PROPORTIONAL TO THE SHEAR STRESS AND SHEAR RATE. A DECREASE IN THE THICKNESS OF THE ADSORBED I LAYER CAUSED AN INCREASE IN THE APPARENT ACTIVATION ENERGY OF VISCOUS FLOW.

UNCLASSIFIED

USSR

UDC 661.183.123.2/3:547.1'118

MUKHITDINOVA, B. A., YERGOZHIN, YE. YE., and RAFIKOV, S. R., Institute of Chemical Sciences, Acad. Sc. KazSSR, Institute of Chemistry, Bashkir Branch Acad. Sc. USSR

"Phosphorylated Redox Ionic Exchange Resins"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72, pp 974-976

Abstract: The starting polymers were obtained by condensation of the halomethylated copolymers of styrene and divinylbenzene with quinone, naphtoquinone, anthraquinone, hydroquinone, pyrrogallol, pyrocatechol, etc. in presence of 1-2% $ZnCl_2$ in refluxing dioxane. Phosphorylation was carried out with $PCl_3$ in presence of $AlCl_3$ at 70° for 8 hrs; then the product was hydrolyzed and acidified with 25% $HNO_3$. To convert the cation exchange group into the $H^+$-form, the material was treated with 10-% HCl. Two active groups were found by potentiometric titration with dissociation constants $pK_1$ 3.05 and $pK_2$ 6.25. IR spectra showed absorption bands in the area of P=O for the oxidized form, and C-O-phenols for the reduced forms. The new exchange resins showed good kinetic properties, increased mechanical strength, and chemical and thermal stability.

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